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The present invention provides an image binarization method in a form with the highest fidelity for multi-digitized luminance data, and a binary image creation method by which images can be obtained in real-time without post-processing. As a first processing, multi-digitized luminance data obtained by digitally converting video signals from an imaging device for each pixel on each horizontal scanning line is stored in a specific one of at least two horizontal line memories, and in the multi-digitized luminance data on the current scanning line, detected maximum value MAX_i and minimum value MIN_i exceeding a predetermined displacement level and the addresses of the detected pixel positions are stored in a specific one of at least two detection memories, and as a second processing, reading-out is carried out from the detection memory specified by the previous horizontal scanning line, and based on floating thresholds $FT = MIN_i + |MAX_i - MIN_i| \times K$ (herein, K is an emphasis coefficient between 0 and 1, and i is an integer starting with 1) for each section of the horizontal pixel address row set by means of operation, multi-digitized data that has been read-out from the horizontal line memory specified by the previous horizontal scanning line is converted into binary data.